

ABSTRACT

The present invention relates to an optical signal processing element capable of performing various functions of equalization of output power, wavelength converting, reshaping or reamplifying an input optical signal using an optical amplifier in which saturable absorbers are integrated, the saturable absorbers being used as an optical gate to improve the extinction ratio of the input optical signal. The saturable absorber and the optical amplifier are connected in series, and a transparent output optical power outputted from the saturable absorber is not less than a saturation input optical power of the optical amplifier.